IN THE SPECIFICATION

Please replace the paragraph at page 5, line 19, to page 6, line 8, with the following rewritten paragraph:

First of all, the transmitting frequency 812 is linearly increased in an UP ~~chirp~~ slope interval Tmu, and linearly decreased in a DOWN ~~chirp~~ slope interval Tmd to transmit electric wave. Herein, it is supposed that a measuring object exists at the relative speed v and the relative distance R to the FM-CW radar apparatus. At this time, if the transmitting frequency is changed by Δf at the light speed C [m/s] and the transmitting wavelength λ[m] in the time intervals Tmu and Tmd, the Doppler frequency fd is represented by a function (1). Herein, the distance frequency fr caused by a time difference between the transmitting frequency and the receiving frequency, which is proportional to the distance, is represented by a function (2). Also, the beat frequency fb1 in the Up ~~chirp~~ slope interval Tmu and the beat frequency fb2 in the DOWN ~~chirp~~ slope interval Tmd are represented by functions (3) and (4), respectively.

Please replace the paragraph at page 6, lines 20-24, with the following rewritten paragraph:

From the function (6), the distance to the target object is calculated from the beat frequency fb1 in the UP ~~chirp~~ slope interval Tmu and the beat frequency fb2 in the DOWN ~~chirp~~ slope interval Tmd. Also, if the distance frequency fr is calculated, the relative speed V is obtained from the functions (1), (3) and (4).

Please replace the paragraph at page 9, lines 2-9, with the following rewritten paragraph:

Figs. 18(a), 18(b) and 18(c) are graphs showing the frequency spectrum of the beat signal for the FM-CW radar apparatus. 904 denotes a frequency spectrum of the beat signal in the UP ~~chirp~~ slope or the DOWN ~~chirp~~ slope. When the transmitting frequency is linearly changed, the beat signal is stable and has one frequency, and the peak value appears sharply as indicated by the frequency spectrum 904 in Fig. 18(a), and then the peripheral portion is at the side lobe level following a window function.

Please replace the paragraph at page 24, lines 1-13, with the following rewritten paragraph:

Figs. 10(a) and 10(b) are graphs showing the modulation waveform according to an embodiment 4 of this invention. In Fig. 10(a), 501 denotes an UP ~~chirp~~ slope waveform of modulation waveform output from a modulation circuit 801 in the FM-CW radar apparatus, and 502 denotes a DOWN ~~chirp~~ slope waveform. The UP slope waveform and the DOWN slope waveform are control waveforms for outputting an UP slope waveform and a DOWN slope waveform respectively. In Fig. 10(b), 503 denotes an output waveform of the D/A converter 3. This modulation waveform is generated by the waveform generation circuit as described in the embodiment 2 or 3. Also, this waveform generation circuit constitutes the modulation circuit 801 of the FM-CW radar apparatus, as shown in Fig. 14. The other constitution or basic operation of the FM-CW radar apparatus has been already described in connection with Figs. 14 to 16(a) and 16(b), and is omitted here.

Please replace the paragraph at page 24, line 14 to page 25, line 4, with the following rewritten paragraph:

For an oscillator of the FM-CW radar apparatus, it is required to apply a control voltage in accordance with the characteristics for each oscillator, because there is typically a non-linear relationship between control voltage (modulation waveform) and oscillation frequency, and also due to individual differences and temperature characteristics. The UP ~~chirp~~ slope waveform 501 and the DOWN ~~chirp~~ slope waveform 502 of Figs. 10(a) and 10(b) involve a control voltage waveform output from the modulation circuit 801 and applied to the oscillator. This control voltage waveform is generated to change the frequency linearly. For these waveforms, the output timings t1 to tn ($n \leq N$) at which the quantization error is smaller are obtained, and replaced with the output time intervals T1 to Tn of the D/A converter 3. Though the output time intervals T1 to Tn are unequal, the method for calculating these intervals has been described in the embodiments 1 to 3.